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(54) **PACKAGING SLEEVE**

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(57) **ABSTRACT**

A sleeve pack is proposed for transporting and/or storing solid products liable to deformation on temperature exposure, comprising a base and a body joined to the base, characterized in that the base is formed from a honeycomb sheet and the body is formed from wound cardboard.

PACKAGING SLEEVE

[0001] The invention relates to a sleeve pack for transporting and/or storing solid products liable to deformation on temperature exposure.

[0002] Products which, though solid at standard temperature, in the range from about 20 to 25° C., may nevertheless deform on temperature exposure must frequently be stored and/or transported in such a way that their dimensional stability is ensured. For this purpose it is common to use sleeve packs which, particularly in the case of relatively large containers, are required to absorb high forces without themselves deforming.

[0003] In practice, for this purpose, sleeve packs with bases made of injection-moulded plastics, more particularly of polyethylene or polypropylene, have become established. The side wall connected to the base, the body of the sleeve pack, which is subject to little or no loading, can be formed for cost reasons from a paper material, in particular from cardboard.

[0004] Also known are sleeve packs which are formed singularly of a paper material.

[0005] A disadvantage of the known sleeve packs is that they frequently lack sufficient dimensional stability to absorb the forces that may occur on the thermal deformation of solid products which are transported in the sleeve pack. However, if the original form of the product changes, problems may occur in downstream processing operations. Polyurethane hotmelt adhesives, for example, are frequently packaged and transported in the form of cylindrical blocks, known as cartridges, often with a weight in the range from 2 to 20 kg. For their further use, the cartridges must fit into existing melting apparatus, in which they are subject in particular to the pressure of a platen, which is generally planar. For the trouble-free processing of the polyurethane hotmelt adhesive cartridges in the melting apparatus, and for the pressure application of the platen, it is necessary in particular for the cartridges to have a planar base.

[0006] It was an object of the invention, therefore, to provide a sleeve pack for the transport and/or storage of solid products liable to deformation on temperature exposure that has sufficient dimensional stability to adsorb the accompanying forces and to prevent deformation of the solid product.

[0007] This object is achieved by means of a sleeve pack for transporting and/or storing solid products liable to deformation on temperature exposure, comprising a base and a body joined to the base, characterized in that the base is formed from a honeycomb sheet.

[0008] Honeycomb sheets are lightweight structural components which on account of their multi-wall construction, with or without sheets of solid material closing them off in a sandwich format at either end, have a high fraction of cavities and combine excellent mechanical properties, in particular high stability, strength and damping, all with a low inherent weight.

[0009] The geometry of the honeycombs is not critical in this utility; it may, for example, be hexagonal in formation, like bees' honeycombs, or else may be generally polygonal in its formation.

[0010] For the base of the sleeve pack of the invention the material selected for the honeycomb sheet may for example be a plastic, more particularly polypropylene.

[0011] It is preferred, however, to produce the base from a paper honeycomb sheet. This is especially advantageous when the body of the sleeve pack as well is formed from a similar material, more specifically from a paper material, since in that case the sleeve pack can be recycled as a single material.

[0012] The paper stock for the body of the sleeve pack is advantageously a cardboard, in particular a wound cardboard.

[0013] The thickness of the honeycomb sheet for the base of the sleeve pack is selected in accordance with the size and weight of the container, preferably in the range from 10 to 25 mm.

[0014] The base and body of the sleeve pack may be joined in any known way, more particularly by stapling, gluing or clipping together or by means of tongue and groove.

[0015] Paper honeycomb sheets are produced, for example, by SWAP GmbH, Frankenberg, as Fixboard® products from Melecky a.s., or as BeeBoard® products from Besin International n.v.

[0016] The geometry of the sleeve pack is preferably cylindrical, more particularly circular-cylindrical. Exemplary dimensions of the body are an internal diameter of 282 mm, an external diameter of 288 mm and an overall height of 350 mm. The base is formed, by way of example, as a circular disc having a diameter of 282 mm and a height of 15 mm.

[0017] With particular advantage the honeycomb sheet selected for the base has a compressive strength of 40 t/m^2 and a buckling resistance of 40 t/m^2.

[0018] The sleeve pack of the invention is suitable in particular for transporting polyurethane compositions which are solid at room temperature, from about 20 to 25° C., but are liable to deformation on temperature exposure. In particular these compositions may be one-component hotmelt adhesives, known as PU hotmelts, of the type, for example, of Kleiberit® PUR-SK, Jowatherm-Reaktant® PU hotmelt adhesive, Henkel Purmelt® or Fuller Ipatherm®.

[0019] In the operation of producing these hotmelt adhesives the product is obtained in a liquid form, frequently at a temperature between about 120 and 150° C., and is initially introduced into a composite aluminium pouch. The composite aluminium pouch filled with the hotmelt adhesive cools down in the sleeve pack over the course of approximately 12 to 24 h, and in doing so it solidifies to form a cylindrical block, the cartridge. The high dimensional stability of the sleeve pack ensures that there is no change in the shape of the cartridge even when transported under extreme climatic conditions.

1-7. (canceled)

8. Sleeve pack for transporting and/or storing solid products liable to deformation on temperature exposure, comprising a base and a body joined to the base and made of wound cardboard, characterized in that the base is formed from a honeycomb sheet with polygonal honeycombs.

9. Sleeve pack according to claim 8, characterized in that the geometry of the honeycombs is hexagonal.

10. Sleeve pack according to claim 8, characterized in that the honeycomb sheet is formed from a paper material.

11. Sleeve pack according to claim 8, characterized in that the thickness of the honeycomb sheet is between 10 and 25 mm.

12. Sleeve pack according to claim 11, characterized in that the thickness of the honeycomb sheet is 15 mm.

13. Sleeve pack according to claim 8, characterized in that the base and the body are joined by stapling, gluing or clipping together or by means of tongue and groove.

14. Sleeve pack according to claim 8, characterized by a cylindrical geometry.

15. Sleeve pack according to claim 14, characterized by a circular-cylindrical geometry.

16. A method of using of a sleeve pack according to claim 8 for transporting and/or storing polyurethane compositions.

17. A method of using of a sleeve pack according to claim 16, wherein the polyurethane compositions are hotmelt adhesives.

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